

What is claimed is:

1. A recombinant nucleic acid comprising a nucleotide sequence encoding an autocatalytically cleaving ribozyme and one or more trans-acting ribozyme(s), operably
5 linked to a tissue-specific or pathogen-specific promoter.
2. A recombinant nucleic acid comprising a nucleotide sequence encoding one or more ribozyme cassette(s); operably linked to a tissue-specific or pathogen-specific promoter.
- 10 3. The recombinant nucleic acid of claim 2 wherein the ribozyme cassette is pClip (as depicted in Figure 2).
4. The recombinant nucleic acid of claim 2 wherein the ribozyme cassette is pChop (as depicted in Figure 3).
- 15 5. The recombinant nucleic acid of claim 2 wherein the ribozyme cassette is pSnip (as depicted in Figure 4).
6. A vector comprising a recombinant nucleic acid encoding a nucleotide sequence
20 encoding an autocatalytically cleaving ribozyme and one or more trans-acting ribozyme(s), operably linked to a tissue-specific or pathogen-specific promoter.
7. A vector comprising the recombinant nucleic acid claim 3, and an origin of replication.
- 25 8. A vector comprising the recombinant nucleic acid claim 4, and an origin of replication.
9. A vector comprising the recombinant nucleic acid claim 5, and an origin of
30 replication.
10. A recombinant cell containing the vector of claim 6.
11. A recombinant cell containing the vector of claims 7, 8, or 9.

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12. A virion comprising a recombinant nucleic acid comprising a nucleotide sequence encoding an autocatalytically cleaving ribozyme and one or more trans-acting ribozyme(s), operably linked to a tissue-specific or pathogen-specific promoter.
- 5 13. A virion comprising the vector of any of claims 6, 7, 8, or 9.
14. The virion of claim 12 which is a bacteriophage.
15. The bacteriophage of claim 14 which is a P1 bacteriophage.
- 10 16. The bacteriophage of claim 14 which is a lamda bacteriophage.
17. A liposome composition comprising a recombinant nucleic acid comprising a nucleotide sequence encoding an autocatalytically cleaving ribozyme and one or more trans-
15 acting ribozyme(s); operably linked to a tissue-specific or pathogen-specific promoter.
18. A liposome composition comprising the vector of any of claims 6, 7, 8, or 9.
19. The nucleic acid of claim 2, encoding more than one trans-acting ribozyme.
- 20 20. The nucleic acid of claim 19, wherein the trans-acting ribozymes are targeted to different sites on the same target-RNA.
21. The nucleic acid of claim 19, wherein the trans-acting ribozymes are targeted to
25 different target-RNAs.
22. The nucleic acid of claim 2, encoding more than one ribozyme cassette.
23. The nucleic acid of claim 2, encoding at least two different ribozymes cassettes.
- 30 24. The nucleic acid of claim 2, encoding more than one copy of a ribozyme cassette.
25. The nucleic acid of claim 2, wherein at least one ribozyme cassette is targeted to a transcript selected from the group consisting of: *rpoA*, *secA*, *dnaG*, *ftsZ*, and *tRNA-Asp*.
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26. The nucleic acid of claim 2, wherein at least one ribozyme cassette is operably linked to a promoter selected from the group consisting of: pol II, HBV, pol III, RB, IGF1, SH, pol I, HPV, C3, C9, B2, Tel, TGF β , CAT, PpaR α , p4501E1, AR, and SF1.

5 27. A method of treating an infection in a subject, comprising administering to the subject the virion of claim 12 whereby the ribozyme(s) encoded by the nucleic acid is expressed and the infectious agent is killed or weakened.

10 28. A method of treating an infection in a subject, comprising administering to the subject the liposome of claim 5 or 6, whereby the ribozyme(s) encoded by the nucleic acid is expressed and the infectious agent is killed or weakened.

15 29. A method of treating a tissue-specific disease in a subject, comprising administering to the subject the virion of claim 12 whereby the ribozyme(s) encoded by the nucleic acid is expressed and the diseased tissue ameliorated.

20 30. A method of treating a tissue-specific disease in a subject, comprising administering to the subject the liposome of claim 5 or 6, whereby the ribozyme(s) encoded by the nucleic acid is expressed and the diseased tissue ameliorated.

31. The method of claim 27 wherein the infection is a bacterial infection, a viral infection, a fungal infection, or a parasitic infection.

25 32. The method of claim 28 wherein the tissue-specific disease is a proliferative disease, a malignant disease, or a cancer.

33. A method of targeted delivery of one or more ribozyme(s) to a pathogen in a subject, comprising:

- 30 a) generating a virion of claim 12; and
b) delivering the virion to the subject,

whereby the pathogen-specific promoter directs transcription of the ribozyme in the cells of the pathogen.

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34. A method of targeted delivery of a ribozyme to a pathogen in a subject, comprising
- a) generating a liposome of claim 17; and
 - b) delivering the liposome to the subject,

whereby the pathogen-specific promoter directs transcription of the ribozyme in the cells of
5 the pathogen.

35. The nucleic acid of claim 1 or 2 that is stabilized by a hairpin loop.

36. The nucleic acid of claim 2 wherein multiple ribozyme cassettes are linked together
10 by at least 4 to 5 nucleotides.

37. The recombinant nucleic acid of claim 1, wherein the pathogen-specific promoter is
an ARN promoter, PROC promoter, or ARC promoter.

15 38. The recombinant nucleic acid of claim 1, wherein the tissue-specific promoter is a
K4 promoter, K7 promoter, K13 promoter or albumin promoter.

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